



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,891	06/07/2000	Tsuo-Chang Lee	06837-099001	8974

7590 09/12/2002

DAVID B. HARRISON
QUANTUM CORPORATION
501 SYCAMORE DRIVE
MILPITAS, CA 95035

EXAMINER

WONG, KIN C

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 09/12/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/588,891

Applicant(s)

LEE ET AL.

Examiner

K. Wong

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims (1-30) are rejected under 35 U.S.C. 103(a) as being unpatentable over Saliba et al (6246535) in view of Saliba et al (JP11339254A).

Regarding claim 9: Saliba ('535) discloses a tape drive servo control that includes a triple push-pull system (in col. 7, lines 23-26 of Saliba ('535)) for generating a composite signal in a servo signal of a data recording system to drive a recording head to any given position within any given track which including:

an optical pickup (as depicted in figures 1 and 2, and , col. 4, lines 58-67 of '535) means for generating three optical spots focused on a recording medium, the spots separated by equal distances across a track, the optical pickup means receiving a set of reflectances from the three spots (as depicted in figure 3 and see col. 5, line 66 to col. 6, line 13 of '535);

a media (element 44 in figure 3 of "535) means for providing the servo tracks responsive to optical spot illumination;

an electronic means (The electronic means for generating the filtered signals is considered inherent because '535 depicted the head board (element 82 in figure 4 and see col.8,

Art Unit: 2651

lines 16-62 of '535) for filtering and transforming the optical signal into electrical signals.) for generating a set of three filtered signals from the three reflectances and generating a set of three S-curves by pair-wise subtraction of the filtered signals (generating the S-curves by the reflected servo signals are considered known to the artisan in the art - see col. 6, line 46 to col. 7, line 48 of '535);

a processing means to generate a composite servo position signal from the S-curves and filtered reflectances (see col. 8, lines 3-62 of '535 where '535 discloses a computer processor for controlling the servo and the processing of the servo signals); and

a servo means (servo system (80) as depicted in figure 5 of '535 and see col. 8, line 16 to col. 9, line 24 for servo functional details) for driving the recording head to a desired position by comparing the desired position to a measured position from the composite servo position (see col. 8, line 63 to col. 9, line 24 of '535 for head positioning control). Thus, the limitations of the claim are considered satisfied because Saliba et al ('535) discloses an optical servo head positioning control in a tape drive.

Although Saliba et al ('535) discloses an optical servo head positioning control in the tape drive, Saliba et al ('535) is silent on closed loop system. Saliba et al ('254A) is relied for the teaching of the closed loop system for the optical servo head positioning control (see page 23, lines 13-15 of '254A).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify head positioning control of '535 with a closed loop positioning control as taught by '254A. The rationale is as follows: one of ordinary skill in the art would have been motivated to provide a fine positioning feedback control as suggested in page 21, lines 11-16.

Regarding claim 10: Saliba et al ('535) teaches that wherein the media means is a linear magnetic tape system (in col. 1, lines 45-64 and col. 8, line 63 to col. 9, line 24).

Regarding claim 11: '535 teaches that wherein the servo tracks are provided on a magnetic side of a recording medium of the linear magnetic tape system (in col. 8, lines 63-65).

Regarding claim 12: '535 teaches that wherein the servo tracks are provided on a non-magnetic side of a recording medium of the linear magnetic tape system (in col. 6, lines 13-17 and col. 11, lines 11-22).

Regarding claim 13: the limitations of wherein the optical spots are separated by one-third track pitch in a direction across the servo tracks are considered known to artisan in the art because '535 describes the similar track pitch for the servo signal in col. 7, lines 28-48.

Regarding claim 14: '535 teaches that wherein a servo track comprises a series of marks in a form of depressed pits on a back coating of the recording medium (in col. 6, lines 2-17).

Regarding claim 15: '535 teaches that wherein a servo track comprises a series of marks in a form of depressed pits on a back coating of the recording medium (in col. 6, lines 2-17).

Regarding claim 16: the limitations of wherein each reflectance value maximum amplitude is normalized to a constant value are considered known because '535 describes the similar constant value in col. 9, line 39 to col. 10, line 64.

Regarding claim 17: '535 teaches that wherein processing means to generate a composite servo position signal from the S-curves and filtered reflectances comprise:

choosing the pair of reflectance values with the largest amplitude gradient; and

adjusting the chosen S-curve position estimate for the zone based on a slope and an offset (in col. 8, lines 3-53).

Regarding claim 18: '535 teaches that wherein individual S-curve position estimates are blended together to generate a continuous position estimate as individual linear sections are traversed (in col. 9, lines 25-61).

Regarding claim 19: '535 teaches that wherein the closed loop servo system comprises a digital processor, the digital processor used to perform the composite servo position calculations from the reflectance values, derive a position error signal based on the position estimate and a commanded position, compensate the error signal in such a way as to reduce the lateral tape motion, and command an actuator to follow the lateral tape motion (in col. 8, line 54 to col. 9, line 24).

Regarding claims 1-8 and 20-30: method claims (1-8 and 20-30) are drawn to the method of using the corresponding apparatus claimed in claims (9-19). Therefore method claims (1-8 and 20-30) correspond to apparatus claims (9-19) and are rejected for the same reasons of obviousness as used above.

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Saliba ('434), Leonhardt et al and Lubratt are cited for optical servo head positioning control.

4. Any inquiry concerning this communication should be directed to K. Wong whose telephone number is (703) 305-7772.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Hudspeth, can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Application/Control Number: 09/588,891

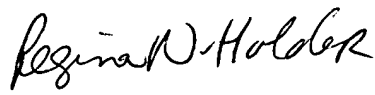
Page 6

Art Unit: 2651

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service whose telephone number is (703) 306-0377.

pkw

4 Sept 02


REGINA N. HOLDER
PRIMARY EXAMINEE